



48 x 48mm

## Temperature Controller TC605

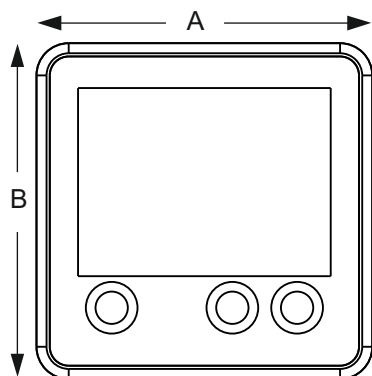
### Features

- 4+4 digits, 7 segment LED dual display
- Auto tune/Self tune PID
- PID/ON-OFF control
- TC/RTD input
- Two set points
- Field selectable control output (Relay or SSR)
- Dwell timer
- Auxiliary output: Relay

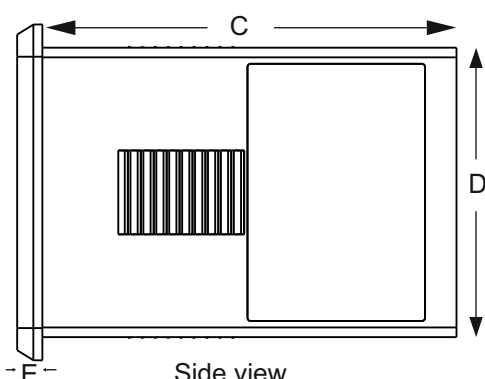
### Applications

- HVAC system
- Industrial ovens & Furnace
- Incubators
- Heat exchangers
- Pharmaceutical industry
- Autoclaves

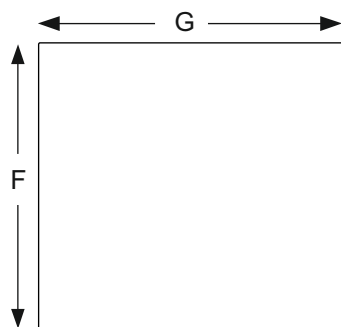
## Dimensions (All are in mm)



Front bezel



Side view



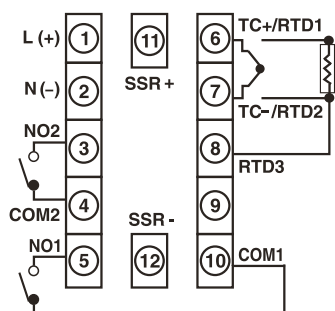
Panel cutout

| MODEL | DIM | A  | B  | C  | D  | E   | F  | G  |
|-------|-----|----|----|----|----|-----|----|----|
| TC605 |     | 52 | 52 | 76 | 45 | 3.5 | 46 | 46 |

## Technical specifications

| Display specifications                        |                                                                                                                                                                                                                  |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display                                       | 4+4 digits, 7 segment LED dual display                                                                                                                                                                           |
| Height of display                             | Upper display: 15.3 mm,<br>Lower display: 8 mm                                                                                                                                                                   |
| LED indication                                | 1. output 1 ON; T: Auto tune<br>2. output 2 ON; S: Dwell timer                                                                                                                                                   |
| Input specifications                          |                                                                                                                                                                                                                  |
| Inputs                                        | Thermocouple (J, K, T, R, S) / RTD (PT100)                                                                                                                                                                       |
| Resolution                                    | 0.1/1° for TC/RTD input<br>(fixed 1° for R & S type TC input)                                                                                                                                                    |
| Indication accuracy                           | For J, K & T inputs : 0.25% of F.S. $\pm 1^\circ$<br>For R & S inputs : 0.5% of F.S. $\pm 2^\circ$<br>(20 min of warm up time for TC inputs)<br>For RTD inputs : 0.1% of F.S. $\pm 1^\circ$<br>(F.S.=Full scale) |
| Temperature unit                              | $^\circ\text{C}/^\circ\text{F}$ selectable                                                                                                                                                                       |
| Input filter (FTC)                            | 0.2 to 10.0 sec                                                                                                                                                                                                  |
| Sampling time                                 | 250 ms                                                                                                                                                                                                           |
| Output specifications                         |                                                                                                                                                                                                                  |
| Control output (Relay or SSR user selectable) |                                                                                                                                                                                                                  |
| Relay contact (SPST)                          | 5A @230V AC/30V DC, Resistive                                                                                                                                                                                    |
| SSR drive (Voltage pulse)                     | 12V DC, 30mA                                                                                                                                                                                                     |
| Auxiliary output                              |                                                                                                                                                                                                                  |
| Relay contact (SPST)                          | 5A @230V AC/30V DC, Resistive                                                                                                                                                                                    |
| Functional specifications                     |                                                                                                                                                                                                                  |
| Control action                                | 1) PID control with auto tuning<br>2) ON-OFF control                                                                                                                                                             |
| Proportional band (P)                         | 1.0 $^\circ\text{C}$ to 400.0 $^\circ\text{C}$                                                                                                                                                                   |
| Integral time (I)                             | 0 to 9999 sec                                                                                                                                                                                                    |
| Derivative time (D)                           | 0 to 9999 sec                                                                                                                                                                                                    |
| Cycle time                                    | 0.1 to 99.9 sec                                                                                                                                                                                                  |
| Hysteresis width                              | 0.1 $^\circ\text{C}$ to 99.9 $^\circ\text{C}$                                                                                                                                                                    |
| Manual reset value                            | -19.9 $^\circ\text{C}$ to 19.9 $^\circ\text{C}$                                                                                                                                                                  |
| Heat-cool                                     |                                                                                                                                                                                                                  |
| Control action                                | PID                                                                                                                                                                                                              |
| Proportional band-cool                        | 0.0 $^\circ\text{C}$ to 400.0 $^\circ\text{C}$                                                                                                                                                                   |
| Cycle time-cool                               | 0.1 to 99.9 sec                                                                                                                                                                                                  |
| Dead band                                     | Programmable from set point low limit to set point high limit                                                                                                                                                    |
| Settings for alarm output                     |                                                                                                                                                                                                                  |
| Modes                                         | Deviation, Absolute                                                                                                                                                                                              |
| Hysteresis                                    | 0.1 to 99.9 $^\circ$                                                                                                                                                                                             |
| Auxiliary supply specifications               |                                                                                                                                                                                                                  |
| Supply voltage                                | 90 to 270V AC/DC, 50/60 Hz, 6VA max                                                                                                                                                                              |
| Environment specifications                    |                                                                                                                                                                                                                  |
| Temperature                                   | Operating: 0 $^\circ\text{C}$ to 50 $^\circ\text{C}$ ;<br>Storage: - 20 $^\circ\text{C}$ to 75 $^\circ\text{C}$                                                                                                  |
| Humidity (Non-condensing)                     | 95% RH                                                                                                                                                                                                           |
| Mechanical specifications                     |                                                                                                                                                                                                                  |
| Mounting                                      | Panel mount                                                                                                                                                                                                      |
| Weight                                        | 116 gm                                                                                                                                                                                                           |

## Terminal connection



## Input sensor ranges (for TC/RTD inputs)

| Sensor type | °C/°F | Ranges      |
|-------------|-------|-------------|
| PT100       | °C    | -150 to 850 |
|             | °F    | -199 to 999 |
| J           | °C    | -199 to 750 |
|             | °F    | -199 to 999 |
| K           | °C    | -199 to 999 |
|             | °F    | -199 to 999 |
| T           | °C    | -199 to 400 |
|             | °F    | -199 to 750 |
| R & S       | °C    | 0 to 999    |
|             | °F    | 32 to 999   |

## Ordering information

| Product code | Output     |              | Output 2   | Supply voltage   | Certification |
|--------------|------------|--------------|------------|------------------|---------------|
|              | Relay      | SSR          |            |                  |               |
| TC605        | RELAY (5A) | SSR (12 VDC) | RELAY (5A) | 90 to 270V AC/DC | -             |

## Compliance

### Applicable EMI/EMC standards

Product standard: IEC 61326-1

| Category                       |                | Standard compliance                                                                                                                                                                                                                                                                                                   |
|--------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ESD immunity                   | IEC 61000-4-2  | Level III                                                                                                                                                                                                                                                                                                             |
| Surge immunity                 | IEC 61000-4-5  | +/- 2 kV common mode,<br>+/- 1 kV differential mode                                                                                                                                                                                                                                                                   |
| Radiated susceptibility        | IEC 61000-4-3  | Level III, 80 to 1000MHz<br>Level II, 1.4GHz to 2GHz<br>Level I, 2GHz to 2.7GHz                                                                                                                                                                                                                                       |
| Conducted susceptibility       | IEC 61000-4-6  | Level II                                                                                                                                                                                                                                                                                                              |
| Voltage dips and interruptions | IEC 61000-4-11 | <b>Dips</b> : 0% residual voltage /<br>1 cycle (Criteria B), 40% residual voltage /<br>10 cycles 50Hz / 12 cycles 60Hz<br>(Criteria C) 70% residual voltage /<br>25 cycles 50Hz / 30 cycles 60Hz<br>(Criteria C)<br><b>Interruptions</b> : 0% residual voltage /<br>250 cycles 50Hz / 300 cycles 60Hz<br>(Criteria C) |
| Conducted emission             | CISPR-11       |                                                                                                                                                                                                                                                                                                                       |
| Radiated emission              | CISPR-11       |                                                                                                                                                                                                                                                                                                                       |
| Electrical fast transient      | IEC 61000-4-4  | Level III                                                                                                                                                                                                                                                                                                             |